

WHAT IS CLAIMED IS:

1. A method of coating silver compounds on a substrate, the method comprising:  
combining a sparingly soluble silver-containing compound with an ammonium-  
5 containing compound to form an aqueous solution,  
coating the solution on a substrate,  
and drying the coated substrate.
2. The method of claim 1, wherein the solution has a pH of about 9.
- 10 3. The method of claim 1 wherein the solution is formed at less than 40 °C.
4. The method of claim 1, wherein the solution is coated at less than 40 °C.
- 15 5. The method of claim 1, wherein the silver-containing compound is selected  
from the group consisting of silver chloride, silver sulfate, silver carbonate, silver  
oxide, silver stearate, silver phosphate, silver thiocyanate.
- 20 6. The method of claim 5 wherein the silver-containing compound is silver oxide.
7. The method of claim 1, wherein the ammonium-containing compound is  
selected from the group consisting of ammonium carbonate, ammonium pentaborate  
and ammonium acetate.
- 25 8. The method of claim 7 wherein the ammonium-containing compound is  
ammonium carbonate.
9. The method of claim 1, wherein the silver-containing compound forms a silver-  
ammonium complex when combined with the ammonium-containing compound.
- 30 10. The method of claim 1, wherein the silver-containing compound remains on the  
substrate after drying the substrate while the remainder of the coating is volatilized.

11. The method of claim 1, wherein the ammonium-containing compound is essentially all removed after drying the substrate.
- 5 12. The method of claim 1, further comprising the step of adding an oxidizing agent to the solution.
13. The method of claim 1, further comprising the step of adding an oxidizing agent to the coated substrate.
- 10 14. The method of claim 1, wherein the substrate is selected from the group consisting of a nonwoven gauze, a woven gauze, a polyester fiber, a foam, a film and a hydrocolloid.
- 15 15. A method of coating silver compounds on a substrate, the method comprising:  
combining silver oxide with ammonium carbonate to form an aqueous solution,  
coating the solution on a substrate,  
and drying the coated substrate.
- 20 16. The method of claim 15, wherein the solution has a pH of about 9.
17. The method of claim 15, wherein the solution is formed at less than 40 °C.
18. The method of claim 15, wherein the solution is coated at less than 40 °C.
- 25 19. The method of claim 15, wherein the silver oxide forms a silver-ammonium complex when combined with the ammonium carbonate.
20. The method of claim 15, wherein the silver oxide is the only compound from the solution that remains on the substrate after drying the substrate.
- 30 21. The method of claim 15, wherein the ammonium carbonate is removed after drying the substrate.

22. The method of claim 15, further comprising the step of adding an oxidizing agent to the solution.
- 5 23. The method of claim 15, further comprising the step of adding an oxidizing agent to the coated substrate.
24. The method of claim 15, wherein the substrate is selected from the group consisting of a nonwoven gauze, a woven gauze, a polyester fiber, a foam, a film and a hydrocolloid.
- 10 25. An article made by the method of claim 1 wherein the article impregnated with sparingly soluble silver-containing compound is essentially free of the ammonium compound or residual components of the ammonium compound and the silver-containing compound introduced during the application of the solution.
- 15 26. An article made by the method of claim 15 wherein the article impregnated with silver oxide is essentially free of compounds introduced during the application of the solution other than the silver oxide.
- 20 27. A method of coating silver compounds on a substrate, the method comprising:  
combining silver oxide with an ammonium-containing compound to form an aqueous solution,  
adding an oxidizing agent in an effective amount to increase the valence state of the silver oxide,  
25 coating the solution on a substrate,  
and drying the coated substrate.
28. The method of claim 27, wherein the solution has a pH of about 9.
- 30 29. The method of claim 27, wherein the solution is formed at less than 40 °C.
30. The method of claim 27, wherein the solution is coated at less than 40 °C.

31. The method of claim 27, wherein the ammonium-containing compound is selected from the group consisting of ammonium carbonate, ammonium pentaborate and ammonium acetate.
- 5 32. The method of claim 31 wherein the ammonium-containing compound is ammonium carbonate.
33. The method of claim 27, wherein the silver oxide forms a silver-ammonium complex when combined with the ammonium-containing compound.
- 10 34. The method of claim 27, wherein the silver oxide is the only compound from the solution that remains on the substrate after drying the substrate.
35. The method of claim 27, wherein the substrate is selected from the group consisting of a nonwoven gauze, a woven gauze, a polyester fiber, a foam, a film and a hydrocolloid.
- 15 36. The method of claim 1, wherein the composition is stable.
- 20 37. A wound dressing made by the method of claim 1.
38. A wound dressing made by the method of claim 15.
39. A wound dressing made by the method of claim 27.
- 25 40. A medical article comprising a porous substrate impregnated with one or more sparingly soluble silver compounds, wherein the medical article has less than 1 N/cm peel strength to steel and does not adhere to wound tissue.
- 30 41. The medical article of claim 40, wherein the medical article is capable of absorbing saline at least 100% of its dry weight.

42. The medical article of claim 40, wherein the medical article is capable of absorbing saline at least 200% of its dry weight.

43. The medical article of claim 40, wherein the porous substrate is nonadherent.

5

44. The medical article of claim 40, wherein the porous substrate is covered on one or more sides by a nonadherent layer.